ABSTRACT OF DISCLOSURE

A linear compressor having a core combined to one end of a piston to detect a position of the piston reciprocally moving up and down, and a bobbin having a first sensor coil and a second sensor coil that detect the position of the core. A controller determines the state of a load on the piston by measuring the time the core takes to exit and enter the bobbin from an inhale stroke through a compression stroke of the piston and control a position of the piston based on the measured state of the load. A method for controlling the operation of the linear compressor including timing the core driven by a piston through a stroke cycle, receiving the time and computing a load on the piston, outputting a piston position signal based on the load computed, and controlling a piston stroke according to the piston position signal, by varying the power driving the linear compressor.